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# **Meat and Poultry Inspection 1978**

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Report of the Secretary of Agriculture  
to the Committee on Agriculture  
House of Representatives

Committee on Agriculture,  
Nutrition, and Forestry,  
U.S. Senate

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**United States  
Department of  
Agriculture**

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## MEAT AND POULTRY INSPECTION 1978

Report of the Secretary of Agriculture  
to the Committee on Agriculture, House of Representatives  
Committee on Agriculture, Nutrition, and Forestry, U.S. Senate

### FOREWORD

This report to the Committee on Agriculture of the U.S. House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the U.S. Senate is submitted as required by section 301(c)(4) of the Federal Meat Inspection Act (21 U.S.C. 661), section 17 of the Wholesome Meat Act (21 U.S.C. 691), and sections 27 and 5(c)(4) of the Poultry Products Inspection Act, as amended (21 U.S.C. 470 and 21 U.S.C. 454).

Section 20 of the Federal Meat Inspection Act (21 U.S.C. 620) also calls for an annual report to Congress on the Foreign Meat Inspection Program. This report was submitted to Congress earlier this year.

### MEAT and POULTRY INSPECTION REGIONS and AREA OFFICES AUTHORITIES AND RESPONSIBILITIES

The Federal Meat Inspection Act and the Poultry Products Inspection Act, as amended, require the Secretary of Agriculture to inspect the slaughter of certain domestic livestock and poultry and the processing of meat and poultry products thereof. The primary objective of this inspection is to ensure that meat and poultry products distributed to consumers are wholesome, not adulterated, and properly marked, labeled, and packaged. In carrying out this complex task, the Secretary has jurisdiction from the time livestock and poultry are received at the slaughtering establishment until the finished products are distributed in commerce to consumers or otherwise distributed subject to the Acts.

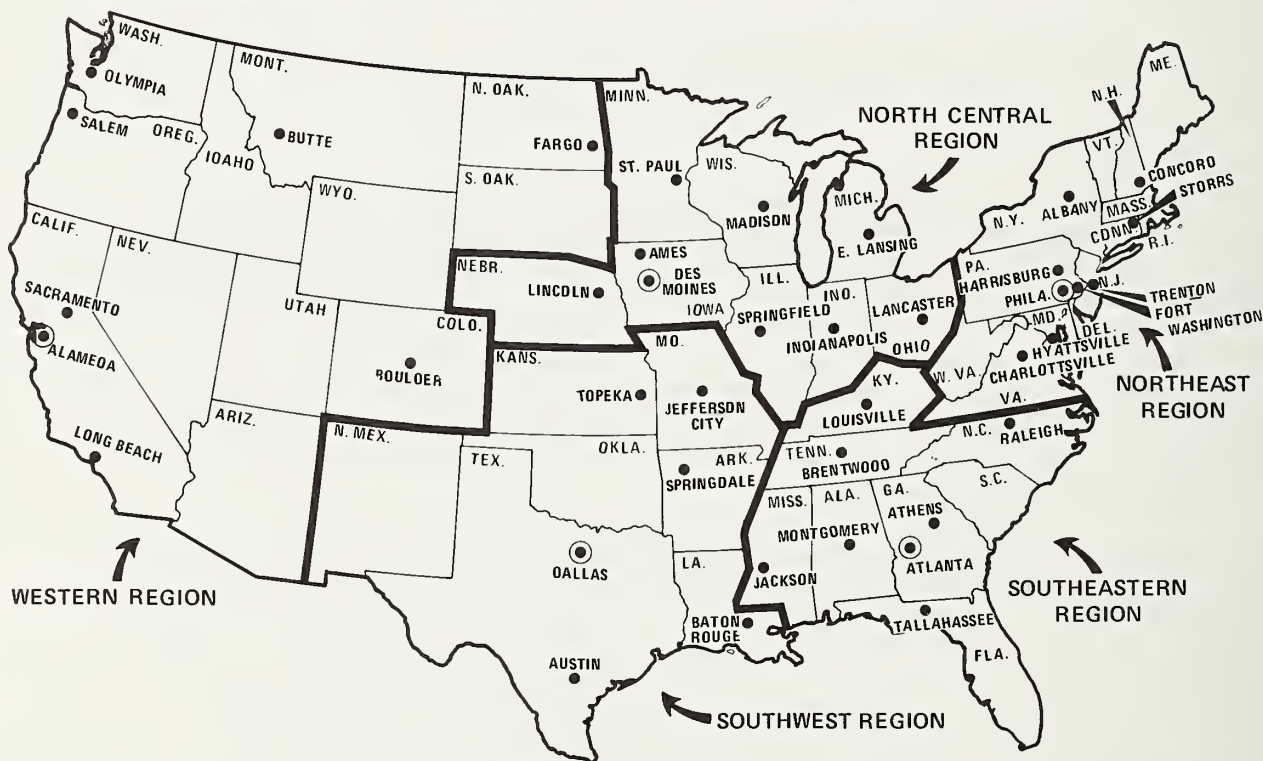
Establishments preparing meat and poultry products for sale or distribution in interstate or foreign commerce are required to have Federal inspection unless exempted under the Acts. Those doing intrastate business in certain "nondesignated States" operate under State inspection programs that are required to effectively enforce requirements at least equal to those under the Federal Acts. Support is extended by USDA to State programs in the form of funds, training, and technical assistance. Federal inspection is required to be extended to intrastate operations in those "designated" States that do not develop or maintain an inspection program with requirements at least equal to those under the Federal Acts.

USDA is responsible for applying uniform standards with respect to sanitation, inspection procedures, and product labeling at all establishments under Federal inspection. It is also responsible for assessing the effectiveness of State inspection programs to assure that standards at least equal to those under the Federal Meat Inspection Act and the Poultry Products Inspection Act are being applied by the States to meat and poultry establishments under their jurisdiction.

USDA, through its Compliance Program, also conducts reviews and investigates for possible violations of the meat and poultry inspection laws.

This report discusses these activities in more detail and summarizes for Congress USDA's achievements in fulfilling its 1978 Meat and Poultry Inspection (MPI) responsibilities.

## MEAT and POULTRY INSPECTION REGIONS and AREA OFFICES



● REGIONAL HEADQUARTERS

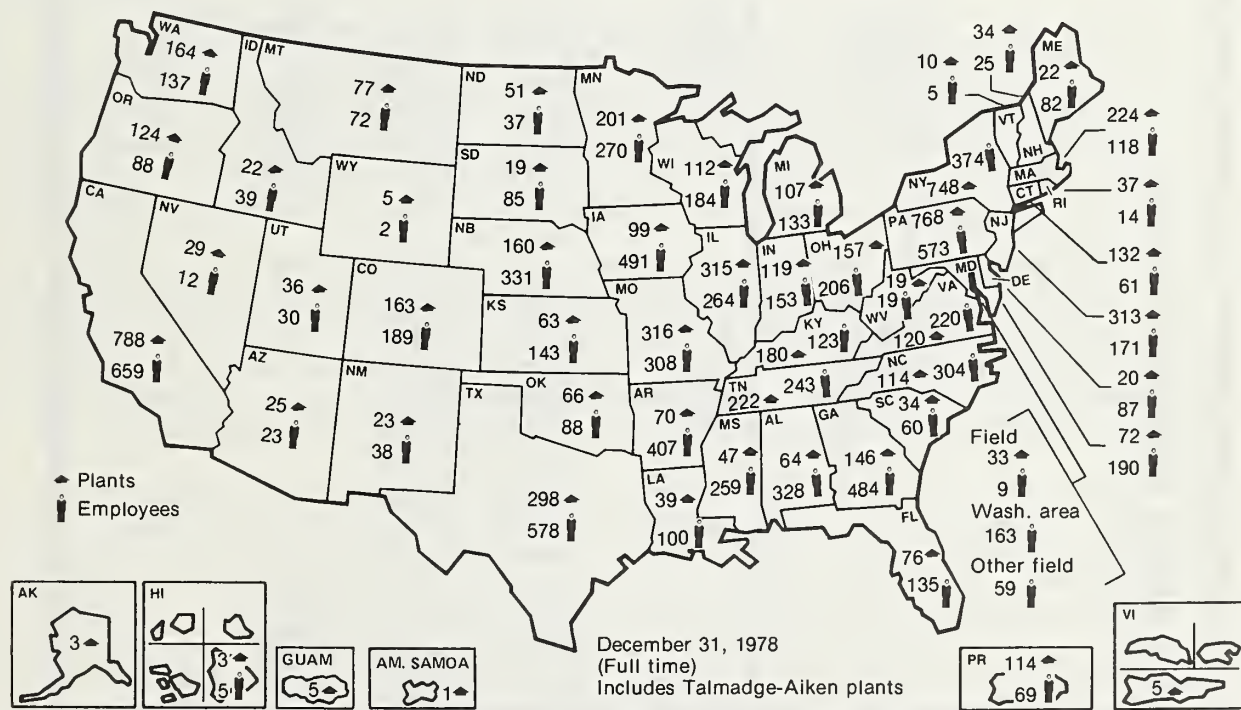
● AREA OFFICE - AREA OFFICE ALSO IN SAN JUAN, PUERTO RICO FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS. THE AREA OFFICE IN OLYMPIA, WASHINGTON SERVICES ALASKA AND THE AREA OFFICE IN SALEM, OREGON SERVICES HAWAII, GUAM, AND AMERICAN SAMOA.



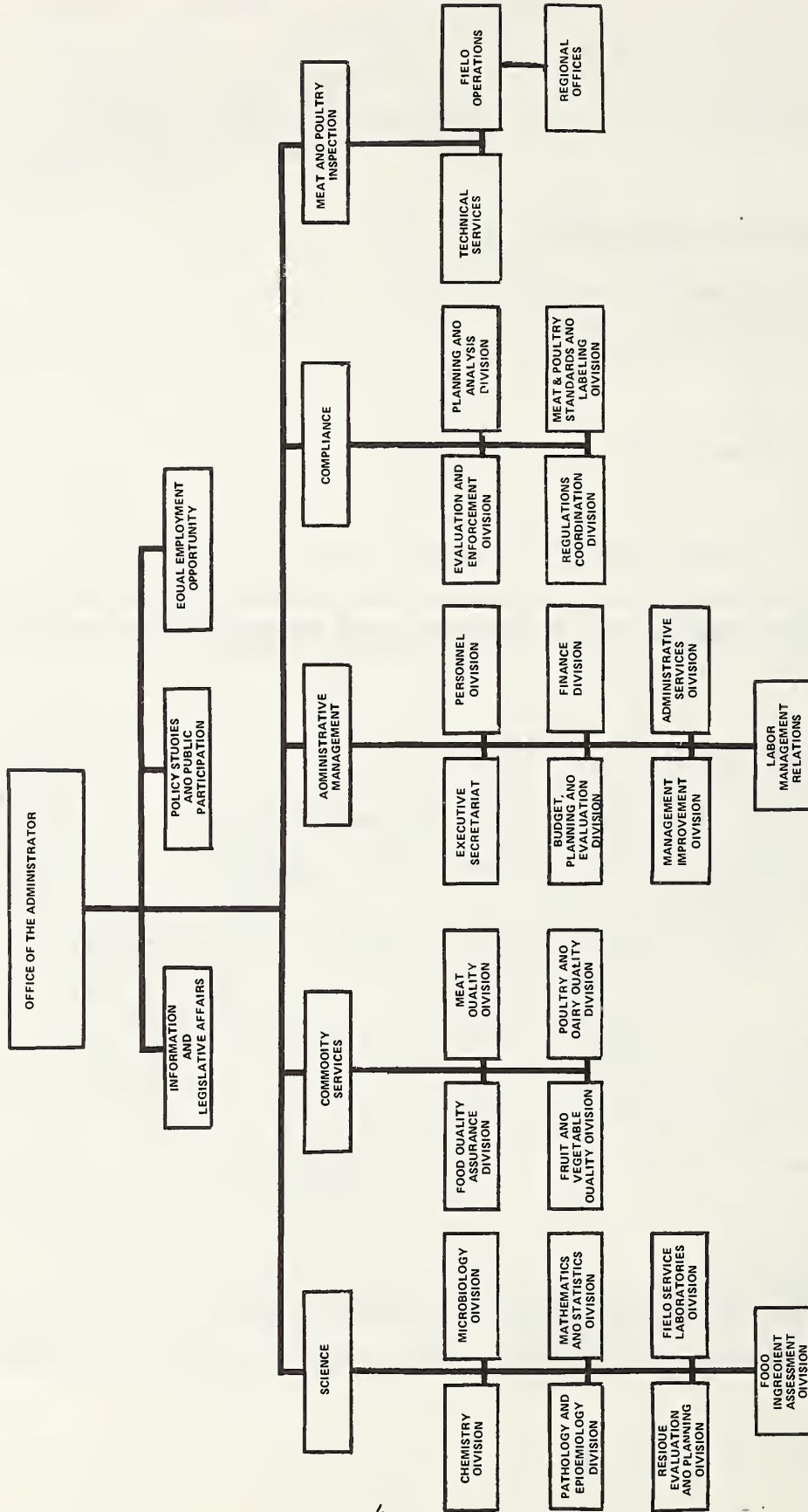
Table 1--Federal inspection--December 31, 1978

Type of Activity	Meat establish-ments	Poultry establish-ments	Meat/poultry establishments	Total
Slaughtering operations only	318	200	--	518
Processing operations only	2,796	286	1,830	4,912
Slaughtering and processing	1,114	176	246	1,536
TOTAL	4,228	662	2,076	6,966
Talmadge-Aiken plants	185	6	57	248
TOTAL	4,413	668	2,133	7,214

## Federally Inspected Plants and Inspectors by Location



# Food Safety and Quality Service





## ORGANIZATION

Responsibility for administration of the meat and poultry inspection laws is assigned to the Food Safety and Quality Service (FSQS). The organizational structure includes three deputy administrators who are responsible for Meat and Poultry Inspection, for Science, and for Compliance.

The Deputy Administrator for Meat and Poultry Inspection directs two organizational units: Field Operations and Technical Services. The Field Operations Unit, through 5 regional offices and 37 area offices, directs the field force of meat and poultry inspectors who enforce regulations in inspected establishments. It includes a Foreign Programs Staff which assesses the effectiveness of inspection programs in countries exporting products to the United States, and coordinates the inspection of imported meat and poultry products at U.S. ports of entry prior to their release by the Customs Service. Field Operations also includes a Federal-State programs staff that coordinates reviews of State programs to evaluate whether they are maintaining inspection programs with requirements at least equal to those under the Federal Acts.

The Technical Services unit comprises a wide range of supporting functions. These functions include the development and application of standards for inspection procedures, plant facilities, equipment, product composition, environmental sanitation, work standards, and automated data processing. Technical Services also provides training for all inspection personnel.

The Deputy Administrator for Science provides laboratory support in various disciplines, including pathology, epidemiology, toxicology, chemistry, and microbiology. The Science Program also provides statistics and mathematics support. The Science and Technical Services staffs are located in Washington, with the exception of regional laboratories, data processing centers, and training centers.

The Deputy Administrator for Compliance provides enforcement support through monitoring the activities of persons and firms engaged in the distribution of meat and poultry products. This program also conducts reviews of federally inspected meat and poultry establishments to monitor the effectiveness of the inspection program. Compliance is also responsible for the establishment of meat and poultry standards and labeling requirements.

The task of assuring that meat and poultry products are safe, wholesome, and accurately labeled is monumental. During 1978, the Food Safety and Quality Service provided inspection in 7,214 plants under Federal inspection (table 2), and monitored activities in 7,663 plants under State inspection (table 6). To fulfill the inspection and supervision requirements of the meat and poultry inspection laws, the services of 9,700 full-time, 1,142 part-time and intermittent Federal employees, and 3,600 State employees were required. To provide the necessary scientific and compliance support for the inspection program, the services of 443 full-time and 62 part-time and intermittent Federal employees were required.

Table 2--Federally inspected establishments by States--December 31, 1978

State or territory	Meat establish- ments	Poultry establish- ments	Meat/ poultry establishments	Total establish- ments
Alabama	22	24	18	64
American Samoa	1	--	--	1
Arizona	13	1	11	25
Arkansas	11	36	17	64
California	432	72	284	788
Alaska	1	--	--	1
Colorado	121	5	37	163
Connecticut	82	8	42	132
Delaware	4	6	2	12
Dist. of Columbia	22	6	5	33
Florida	40	5	31	76
Georgia	35	43	27	105
Guam	3	--	2	5
Hawaii	1	--	1	2
Idaho	19	--	3	22
Illinois	186	18	77	281
Indiana	62	18	30	110
Iowa	69	7	23	99
Kansas	39	2	22	63
Kentucky	130	7	43	180
Louisiana	24	5	9	38
Maine	7	7	8	22
Maryland	26	15	14	55
Massachusetts	138	22	64	224
Michigan	63	7	20	90
Minnesota	73	21	107	201
Mississippi	10	19	10	39
Missouri	226	25	65	316
Montana	30	--	47	77
Nebraska	97	9	54	160
Nevada	5	2	22	29
New Hampshire	19	3	12	34
New Jersey	192	14	107	313
New Mexico	14	--	9	23
New York	476	35	237	748
North Carolina	41	25	19	85

Table 2--Federally inspected establishments by States--(Continued)

State or territory	Meat establish- ments	Poultry establish- ments	Meat/ poultry establishments	Total establish- ments
North Dakota	35	--	16	51
Ohio	108	13	34	155
Oklahoma	36	4	11	51
Oregon	96	8	20	124
Pennsylvania	546	58	164	768
Puerto Rico	83	3	28	114
Rhode Island	25	4	8	37
South Carolina	8	6	8	22
South Dakota	13	3	3	19
Tennessee	135	15	72	222
Texas	170	28	100	298
Utah	20	7	7	34
Vermont	4	--	6	10
Virginia	35	16	25	76
Virgin Islands	2	--	3	5
Washington	109	12	43	164
West Virginia	9	3	7	19
Wisconsin	59	15	38	112
Wyoming	1	--	4	5
TOTAL	4,228	662	2,076	6,966
Talmadge-Aiken plants	185	6	57	248
TOTAL	4,413	668	2,133	7,214

## FEDERAL INSPECTION

Inspection falls into three general categories: ante-mortem and post-mortem, sanitation, and product processing.

### ANTE-MORTEM AND POST-MORTEM INSPECTION

Poultry and animals are examined for signs of disease or abnormality before slaughter. Following slaughter, each individual carcass and its viscera are inspected carefully to establish the wholesomeness of the carcass and organs intended for human consumption. Those that do not pass inspection are condemned and destroyed for human food purposes. The magnitude of the overall task can be measured by the number of animals and birds inspected in 1978--over 117 million livestock (table 3) and 3.8 billion birds (table 4).

Since the disposition of carcasses and parts of carcasses has major public health and economic importance, it is essential that inspectors accurately apply uniform standards. For these reasons, veterinary supervisors monitor disposition procedures and the work of the inspectors assigned to each establishment. Staff specialists continually review the inspection standards, and revise standards or develop new standards, as necessary, to ensure that inspection is carried out in an effective and efficient manner. Further, staff specialists conduct meetings in each region to ensure that veterinary inspectors supervising the work use the same standards in making dispositions of animals, carcasses, and parts.

Table 3--Number of livestock federally inspected, 1974-78

Species	<u>Thousands</u>				
	1974	1975	1976	1977	1978
Cattle	33,318	36,903	38,991	37,025	36,257
Calves	2,355	3,896	4,437	4,316	3,438
Hogs	77,071	64,927	70,457	69,202	72,024
Goats	72	49	40	48	44
Sheep & lambs	8,556	7,550	6,474	5,752	4,988
Equine	207	247	293	325	334
TOTAL	121,579	113,572	120,692	116,668	117,085

Table 4--Number of poultry federally inspected, 1974-78

Class	1974	1975	1976	1977	1978
<u>Thousands</u>					
Young chickens	2,904,727	2,927,590	3,260,340	3,344,593	3,533,252
Mature chickens	193,328	175,718	180,135	192,840	191,727
Fryer-roaster turkeys	13,901	12,276	12,627	9,431	6,878
Young turkeys	111,540	106,214	120,610	117,930	124,239
Old turkeys	1,308	956	1,098	964	999
Ducks	11,552	11,453	13,161	13,750	15,485
Geese	363	341	323	374	470
Rabbits <sup>1/</sup>	718	651	779	849	717
Others	11	19	6	8	6
TOTAL	3,237,418	3,235,218	3,589,079	3,680,739	3,873,773

<sup>1/</sup> These animals were inspected under the voluntary inspection program pursuant to the Agriculture Marketing Act of 1946, as amended (7 U.S.C. 1621 et seq.).



## SANITATION INSPECTION

Inspectors are assigned to conduct sanitation inspections at slaughtering and processing plants in order to assure that such plants are producing wholesome food. Immediate corrective action is required when unsanitary conditions are found. If a product may become adulterated because of unsanitary conditions, inspection is withheld and plant operations cease. Inspection service may be withdrawn if a plant, after appropriate notice, fails to eliminate unsanitary conditions.

FSQS emphasizes continuing improvement of sanitation practices in meat and poultry establishments. Priority has been placed on microbiological control, and establishments are encouraged to develop microbiological monitoring programs. FSQS provides assistance in developing and implementing different types of monitoring programs, and there are presently more than 180 establishments with accepted or pending programs.

## PRODUCT PROCESSING INSPECTION

Advances in production technologies have created the need for quality control procedures. The consumer and the processor both benefit from increased efficiency and improved product control systems.

The industry continues to show interest in improved systems to control plant operations. This creates good rapport between industry and the Department, and it promotes compliance with the law. Approximately 350 revised or new quality control procedures have been reviewed and approved, and these procedures have enhanced the traditional inspection methods. Benefits which result from improved quality control include industry concern for product compliance, more industry participation in the regulatory process, increased consumer protection, increased costs return to industry, and lower overall inspection costs for the Department.

Table 5--Processed meat and poultry products inspected, 1974-78<sup>1/</sup>

Product		1974	1975	1976	1977	1978
		[million pounds]				
Meat products	54,259	51,663	58,639	63,407		66,168
Poultry products	18,723	17,812	22,759	24,900		27,770
TOTAL	72,982	69,475	81,398	88,307		93,938

<sup>1/</sup> These data represent the total weight of finished products including the weight of nonmeat ingredients. In addition, there is some multiple counting of complex products. These require inspection at intermediate steps in production.

## STATE INSPECTION

### Federal-State Cooperative Program

At the end of 1978, 32 States were conducting meat inspection programs, and 24 States were conducting poultry inspection programs. Collectively, there were 7,559 meat and poultry establishments under State jurisdiction (table 6).

The Federal Meat Inspection Act (FMIA) and the Poultry Products Inspection Act (PPIA) provide for each State to develop and effectively enforce State meat and poultry inspection programs which are at least equal to the Federal requirements. Systematic, but random, reviews are made of State establishments to determine compliance with basic inspection requirements, including ante-mortem and post-mortem inspection, reinspection, sanitation, water supply, sewage, and waste material control. In addition, States are required to maintain and operate enforcement provisions which are at least equal to Federal requirements. During calendar year 1978, 401 official intrastate plants and 195 custom operations were reviewed for compliance with basic inspection requirements.

If a State fails to develop or effectively enforce requirements "at least equal" to the Federal requirements with respect to intrastate operations, the Secretary is required to designate the State, and 30 days after such designation is published in the FEDERAL REGISTER, the Federal program and provisions of the Federal Act apply with respect to inspection of establishments, operations, and transactions wholly within the State.

During 1978, the Federal Government assumed jurisdiction over the intrastate meat and poultry plants in New Hampshire, when that State discontinued its inspection program for financial reasons.

Also last year, the USDA entered into a new type of cooperative agreement with the State of Minnesota. The State agreed to evaluate the sanitation at plants slaughtering and preparing products on a custom basis, and to ensure the proper identification of custom products at such plants. Minnesota State officials conduct periodic reviews of these operations, which are exempt from our routine inspection under section 23 of the FMIA and section 15 of the PPIA, at no cost to the Department.

Table 6--State program data, December 31, 1978

	Plants			Employees			Budget FY 1978- expenditures (incl. Federal funding) (\$000)
	Official	Exempt	Total	Full time	Part time	Total	
Alabama	129	70	199	73	4	77	1,540
Alaska	17	4	21	5	8	13	518 *
Arizona	77	31	108	33	2	35	675
Arkansas	104	78	182	75	31	106	1,358 *
Delaware	9	5	14	10	5	15	213
Florida	335	84	419	148	0	148	2,535
Georgia	187	66	253	133	0	133	2,642
Hawaii	72	1	73	57	0	57	1,197 *
Idaho	72	105	177	54	38	92	1,075 *
Illinois	576	40	616	276	200	476	5,498 *
Indiana	178	87	265	118	1	119	2,668
Iowa	210	242	452	51	2	53	1,101
Kansas	193	55	248	83	119	202	1,520
Louisiana	190	79	269	142	22	164	2,104
Maine	33	56	89	10	4	14	227 *
Maryland	67	23	90	54	6	60	1,233
Michigan	343	56	399	180	0	180	4,648 *
Mississippi	107	30	137	73	0	73	1,366
New Mexico	43	31	74	18	6	24	325
North Carolina	263	128	391	169	33	202	2,966 *
Ohio	445	184	629	224	5	229	4,439
Oklahoma	131	164	295	97	52	149	1,617
Rhode Island	31	6	37	7	11	18	225
South Carolina	138	0	138	85	22	107	1,418 *
South Dakota	47	109	156	35	0	35	487 *
Texas	554	201	755	346	0	346	6,264 *
Utah	48	65	113	31	48	79	731

Table 6--State program data, December 31, 1978

	Plants			Employees		Budget FY 1978- expenditures (incl. Federal funding)	
	Official	Exempt	Total	Full time	Part time	Total	
Vermont	27	37	64	14	3	17	356
Virginia	35	157	192	69	1	70	1,437
West Virginia	46	67	113	40	0	40	844
Wisconsin	340	181	521	121	5	126	2,874 *
Wyoming	36	34	70	10	16	26	191
TOTAL	5,083	2,476	7,559	2,841	664	3,485	

\* Estimate.

Table 7--Dates USDA assumed intrastate inspection

State	Meat	Poultry
Arkansas		1-2-71
California	4-1-76	4-1-76
Colorado	7-1-75	1-2-71
Connecticut	10-1-75	10-1-75
Georgia		1-2-71
Idaho		1-2-71
Kentucky	1-14-72	7-28-71
Maine		1-2-71
Massachusetts	1-12-76	1-12-76
Michigan		1-2-71
Minnesota	5-16-71	1-2-71
Missouri	8-18-72	8-18-72
Montana	4-27-71	1-2-71
Nebraska	10-1-71	7-28-71
Nevada	7-1-73	7-1-73
New Hampshire	8-7-78	8-7-78
New Jersey	7-1-75	7-1-75
New York	7-16-75	4-11-77
North Dakota	6-22-70	1-2-71
Oregon	7-1-72	1-2-71
Pennsylvania	7-17-72	10-31-71
South Dakota		1-2-71
Tennessee	10-1-75	10-1-75
Utah		1-2-71
Washington	6-1-73	6-1-73
West Virginia		1-2-71



## Talmadge-Aiken Act

The Talmadge-Aiken Act (T-A) authorizes the Secretary of Agriculture to enter into cooperative arrangements with State departments of agriculture on matters involving meat and poultry inspection. It is the intent of this act to achieve, through closer State-Federal coordination, greater program effectiveness and economy by avoiding duplication of functions, facilities, and personnel. This act continues to serve as a means to carry out Federal meat and poultry inspection with State employees. Under the act, the Secretary is responsible for the conduct of Federal inspection in these establishments. There is no variance in the standards for establishments operating under a T-A inspection agreement since they are, in fact, federally inspected establishments. At the end of 1978, 248 plants were receiving Federal inspection under T-A authority (table 8).

## IMPORTS AND EXPORTS

Import activities of the 1978 Foreign Meat Inspection programs were reported to Congress in March, 1979.

Import activities for poultry inspection, controlled under regulations identical to those that apply to meat, require no formal report. Canada, France, Hong Kong, and Israel are authorized to export poultry products to the United States.

USDA implemented the automated Import Information System (IIS) in October, 1978. The data system is described in greater detail later in this report.

The MPI Foreign Programs staff continues, through its certification procedures, to assist in the export of meat and poultry to foreign countries. Formal certification is required for meat and poultry plants that export to the Republic of Germany, France, Italy, and the United Kingdom. Foreign officials representing the aforementioned meat and poultry inspection systems assure compliance with their requirements by either an inplant review, or a written certificate from the Department assuring that each affected U.S. processing establishment complies with their requirements. The Foreign Programs staff provides formal certification to qualifying establishments. In the United States, there are 9 meat plants and 23 poultry plants certified to export to the Republic of Germany; 17 horsemeat plants certified to export to France; 18 meat plants certified to export to Italy; and approximately 1,000 meat and poultry plants certified to export to the United Kingdom.

Table 8--Federal establishments inspected by State employees  
under the Talmadge-Aiken Act, December 31, 1978

State	Meat establish- ments	Poultry establish- ments	Combination meat and poultry establishments	Total establish- ments
Alaska	1	--	1	2
Arkansas	5	--	1	6
Delaware	7	--	1	8
Georgia	37	--	4	41
Hawaii	--	--	1	1
Illinois	24	2	8	34
Indiana	5	--	4	9
Louisiana	1	--	--	1
Maryland	9	1	7	17
Michigan	17	--	--	17
Mississippi	6	--	2	8
North Carolina	25	1	3	29
Ohio	2	--	--	2
Oklahoma	9	--	6	15
South Carolina	9	1	2	12
Utah	2	--	--	2
Virginia	26	1	17	44
TOTAL	185	6	57	248

## SUPPORTING STAFFS AND ACTIVITIES

MPI's Technical Services, as well as the program areas of Science and Compliance provide essential support to the inplant inspection force.

### TECHNICAL SERVICES

The Technical Services unit provides technical and consultative support for matters relating to ante-mortem and post-mortem inspection; facilities, equipment, and sanitation; processed products; technology assessment; work standards and data services; and program training.

#### Ante-Mortem and Post-Mortem Inspection Staff

This staff establishes policy for the ante-mortem and post-mortem inspection of livestock and poultry, including the revision of inspection procedures to increase effectiveness. For example, the staff last year developed and tested several new procedures to improve the efficiency of young chicken inspection. In addition, new regulations were promulgated to allow State inspected and foreign inspected plants to sell undenatured lungs in commerce to pet food manufacturers. These regulations also amended the recordkeeping and certification requirements to permit shipment of the lungs between warehouses.

#### Facilities, Equipment and Sanitation Staff

The Facilities, Equipment and Sanitation staff ensures that establishments provide sanitary environments for processing and distributing meat and poultry products. This task is accomplished by the development, implementation, and review of standards for plant facilities and equipment. Reviews of blueprints of plants and drawings of equipment for the past 5 years are as follows:

<u>Activity</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Blueprints of Plants	3,491	3,267	3,981	3,630	3,230
Drawings of Equipment	538	496	951	1,037	1,328

## Processed Products Inspection Staff

This staff is responsible for establishing policies concerning processed products inspection. For example, this staff proposed revised net weight regulations in December, 1977, and, though a final regulation has not been issued due to extended comment periods, the staff has commissioned a study of the potential economic impact this policy may impose on consumers and the industry. The net weight proposal is further detailed later in this report.

## Technology Assessment Staff

This staff is responsible for analyzing the long-range consequences of technology and weighing the intended benefits of such technology against the potential economic, environmental, social, or other risks. Until the creation of this staff, new technology was analyzed solely to determine whether it would accomplish the task intended. Our rapidly changing technologies now demand the more detailed assessments which are performed by this staff.

## Work Standards and Data Services Staff

This staff is responsible for the work standards and automated data processing activities of the Meat and Poultry Inspection Program. These activities include the development and application of work standards, maintenance of the workload-based manpower forecasting and control system, and the formulation of indices for measuring productivity trends. The staff plans and implements data services, assists with computer systems design, and operates the various data processing facilities. In addition, the staff prepares and publishes statistical and management data used by FSQS and other USDA agencies, other government agencies, research organizations, and industry at large.

## Training Staff

This staff is responsible for providing job training and career development to USDA inspectors and veterinarians. The goal of the training program is to increase the efficiency and effectiveness of our inspection program through the development of skilled and knowledgeable personnel.

Formal meat and poultry inspection training is conducted at job sites and at a training center in Fort Worth, Texas. Educational materials are also available for loan to field locations. Training methods include lectures, demonstrations, workshops, self-instructional materials, and use of the latest audiovisual aids.

The staff has made a priority of the design, production, and evaluation of self-instructional training modules. Forty-two modules are now being developed, which present a variety of media (filmstrips, slides, audio-cassettes, videotapes, printed publications and other) covering a broad range of subjects and job skills needed by inspectors and veterinarians.

Table 9 - Personnel Trained During Calendar Year 1978

ASSEMBLED GROUPS


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	Veterinarians	Inspectors	Other
<u>Training Center</u>			
Federal	337	588	20
State	45	57	
Foreign	2	3	
Other (university)	4		
Subtotal			1,056
<u>Other Locations</u>			
Federal	1,265	38	21
State	10	11	
Other			202
Subtotal			1,547

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<u>INDIVIDUAL SELF PACED</u>			
Correspondence			
Subtotal			931
GRAND TOTAL			<u>3,534</u>



## SCIENCE

The Science Program provides analytical services and scientific guidance to Federal and State meat and poultry inspection programs, to other FSQS programs, and to other Federal agencies. The analytical services (sample analysis, quality assurance, methods development, and special projects) are provided in the fields of chemistry, microbiology, and pathology by the National Staff Laboratory in Beltsville, Maryland; Western Multidisciplinary Laboratory in San Francisco, California; Eastern Multidisciplinary Laboratory in Athens, Georgia; and the Midwestern Multidisciplinary Laboratory in St. Louis, Missouri. FSQS laboratories in Peoria, Illinois, and Kansas City, Kansas, report to the Midwestern Laboratory. In addition, analytical support is provided through contracts with State laboratories in California, Kentucky, and New York. Scientific guidance is provided by the Washington staffs in the areas of chemistry, microbiology, pathology, epidemiology, toxicology, residue evaluation, food ingredient assessment, nutrition, mathematics and statistics.

### Chemistry Division

This division develops analytical procedures to detect drug residues. Methods have been developed to quantify selenium, melengesterol acetate, and pentachlorophenol; methods are being developed to detect other residues, including gentian violet.

In 1978, the division chemically analyzed 77,398 samples in Federal Laboratories, monitored the analysis of 45,874 samples in State contract laboratories, and monitored the analysis of 28,000 samples in private certified laboratories. Further information describing the number of residue samples analyzed is provided later in the report.

The division also analyzed in 1978 various mechanically processed meat and poultry products to determine their safety.

### Microbiology Division

The Microbiology Division and its related laboratories provide analytical services for Federal, State, and local agencies. In 1978, two additional facilities began operation to augment the divisional Microbiology and Methods Development Laboratories in Beltsville, Maryland, and the microbiology sections of the multidisciplinary laboratories located in Athens, Georgia, and San Francisco, California. The Microbiology Laboratory at the National Residue Laboratory in Peoria, Illinois, began analyzing antibiotic residue analysis in January 1978, and the microbiology section at the new multidisciplinary laboratory in St. Louis, Missouri began operations in December 1978.

In 1978, 19,932 meat and poultry samples were analyzed by all functioning microbiology laboratories, and 156,205 tests were performed on these samples. The total number of samples examined rose by 5.8 percent, while the total number of tests performed increased 57 percent over calendar year 1977. These changes reflect the ever increasing need for these types of analyses.

#### Pathology and Epidemiology Division

This division is responsible for developing the pathology and epidemiology programs which provide laboratory and investigative services for the Food Safety and Quality Service. The division also develops new inspection systems that use immunological methods. Diagnostic pathology services are provided to inspectors by three field laboratories. Many of the division's responsibilities are carried out in facilities at Beltsville, Maryland. Some of these are methods development, equipment evaluation, special studies, advisory services, immunological testing systems, and operation of a Meatborne Hazard Control Center.

The division's accomplishments in 1978 covered a broad spectrum of public health and preventative medicine activities, which include the following:

- A continuing education course presented by staff pathologists and epidemiologists for 1,099 program veterinarians.
- Epidemiological investigations of 285 reports of alleged foodborne health hazards. Some incidents involved large numbers of people in many States which required close cooperation with local, State, and Federal agencies, and extensive investigations to eliminate the problem.
- A definitive study of beef, pork, poultry, and eggs produced in the southeastern States was conducted to substantiate that a severe aflatoxin infestation of corn would not result in toxic residues in the products.
- An investigation coordinated by the division, with the Public Health Service, of reports from a Colorado slaughtering plant during the year of the infestation of 10 pigs with the parasite Taenia solium cysticerci, (a significant human health hazard). As a result, the division conducted a survey of swine in the southwestern States to determine the prevalence of the disease in swine and the ability of inspectors to detect it. No problem was identified.
- Diagnostic assistance for 5,037 cases submitted by field program veterinarians.

## Mathematics and Statistics Division

This division develops the mathematical and statistical information for the Food Safety and Quality Service, including the necessary design, parameter, feasibility, and quantifiability of such data. The staff also develops product acceptance sampling procedures and helps conduct product standards studies. In 1978, the division focused its attention on problems associated with chemical residue monitoring. The staff evaluates published articles, designs experiments, summarizes data, assists other programs in interpreting and using data, and determines, through surveys, the degree of consumer understanding of product labels.

## Residue Evaluation and Surveillance Division

The Residue Evaluation and Surveillance Division monitors meat and poultry animals for chemical residues to support inplant inspection, and to control and prevent the occurrence of potentially harmful substances in the food supply. The division develops domestic and import residue sampling programs. The interdisciplinary nature of the program requires a variety of expertise, and the staff, therefore, represents veterinary science, toxicology, pharmacology, epidemiology, and chemistry.

Further information describing the 1978 activities of this division is provided later in the report.

Table 10--Red meat and poultry samples analyzed  
for specific residues, 1978

Residue	Red meat samples analyzed	Poultry samples analyzed
Chlorinated hydrocarbon pesticides	1,747	685
Antibiotics	4,917	1,133
Organophosphorus compounds	235	0
Arsenic	514	306
Trace metals <sup>1/</sup>	229	174
Hormones	1,898	145
Sulfa drugs	7,241	737
Drugs, general	295	233
TOTAL	17,076	3,413

<sup>1/</sup> Adjusted for separate arsenic listing.



## COMPLIANCE

The Compliance Program monitors the activities of persons and firms engaged in the preparation and distribution of meat and poultry products to see that the provisions of the Federal Meat Inspection Act and Poultry Products Inspection Act are understood and obeyed. The Compliance Program documents alleged violations of law, initiates detention actions to control adulterated, misbranded, and uninspected products; conducts systematic reviews of all federally inspected establishments; and initiates and coordinates actions with respect to withdrawals of inspection from establishments. The Program also develops product standards, reviews labels, and monitors federally inspected products to assure they are accurately labeled.

In 1978, the Compliance Program documented 905 alleged violations of the meat and poultry inspection acts. Some of the alleged violations involved more than one individual or firm. Minor violations were closed with letters of warning under the authority of the acts when it was found that the public interest was adequately served thereby.

In 1978, 113 cases were referred to appropriate U.S. attorneys, through the Office of the General Counsel, with recommendations either for prosecution or closing cases with warning letters. Cases involved slaughtering animals without inspection; preparing, transporting, and selling adulterated meat or poultry products; misrepresenting uninspected products as inspected; and failing to denature inedible products to preclude their use as human food.

In 1978, six administrative actions to withdraw Federal inspection from official establishments were closed with consent orders. One withdrawal action was completed, and three additional actions were initiated. Withdrawal actions were based on bribery, assault, or violation of current consent orders.

Compliance officers completed detention actions involving more than 10 million pounds of product. The product either is brought into compliance or, if unwholesome or otherwise adulterated, destroyed for food purposes. If voluntary dispositions are not made, seizures and dispositions by Federal courts are necessary. In 1978, seizures involving 252,146 pounds of product were made. The Compliance Program participated in monitoring recalls involving over 1,200,000 pounds of meat and poultry products.

The Program conducted 3,201 reviews of the adequacy of inspection in federally inspected establishments (table 11). These reviews are conducted on a systematic basis with additional followup reviews, as necessary, based on the seriousness of deficiencies found in previous visits.

The Program continued cooperative Federal-State development and training programs for intrastate compliance activities. Cooperative work plan agreements continue in effect in 27 States.



Table 11--Compliance Activities, 1974-1978

	1974	1975	1976	1977	1978
Compliance reviews conducted	43,163	42,786	44,367	46,723	51,317
Apparent violations detected	845	905	858	919	849
Letters of warning issued	955	990	1,105	1,047	1,024
Cases referred to Department Office of Investigation	51	60	25	12	18
Cases referred to Department Office of General Counsel	79	89	122	146	89
Cases referred to Department of Justice by General Counsel	38	58	74	89	90
Cases prosecuted by Department of Justice	14	12	8	26	56
Detention actions on product	769	931	955	1,021	790
Establishments reviewed	1,393	2,793	2,760	2,887	3,150

Table 12--Product labels reviewed, 1974-78

Activity	1974	1975	1976	1977	1978
Labels processed	127,445	127,642	125,994	112,974	106,054
Labels not approved	6,428 (5.1%)	8,794 (6.8%)	9,712 (7.7%)	10,030 (8.9%)	13,430 (12.7%)

## MAJOR INITIATIVES

The Food Safety and Quality Service is making considerable progress in achieving its goal of making available an abundance of nutritious, wholesome, and informatively labeled food which is profitable for the farmer yet affordable to Americans on all income levels. The remainder of this report discusses the activities which have been assigned priorities by this agency. Always first on the priority list is the protection of human health.

### Nitrosamines and Nitrites

The Department of Agriculture and the Food and Drug Administration are faced with an extremely difficult situation with respect to nitrites. This substance has been used for many years in such traditional products as bacon, ham, and hotdogs as a preservative to prevent botulism, to impart the characteristic flavor, and to fix the color. In recent years, however, scientists have found that nitrites may, under certain conditions, lead to the formation of nitrosamines, which are carcinogenic. Accordingly, in May of 1978, the Department embarked on a course of regulatory action intended to eliminate nitrosamines, while retaining the use of reduced levels of nitrites to protect against the hazards of botulism.

Staff members of MPI's Technical Services and Field Operations, together with the Science Program staff, participated in regulatory actions pertaining to nitrosamines. The Ante-Mortem and Post-Mortem Inspection staff of Technical Services made significant contributions to a bacon task force to help bacon producers meet the nitrite restrictions imposed on their curing processes. The Methods Development Unit of Science's Chemistry Division conducted several laboratory studies to detect and quantify the amounts of nitrosamines in bacon. Also, the staff of Field Operations monitored each of the 207 bacon producing plants to ensure that the establishments complied with the restrictions imposed for nitrites on bacon.

The May 16, 1978, final rule to lower nitrite levels in bacon focused primarily on eliminating nitrosamine formations in bacon products. However, the scientific evidence indicating the carcinogenic nature of nitrosamines has also raised questions about the safety of nitrites themselves. As a result, the Food and Drug Administration commissioned the Massachusetts Institute of Technology (MIT) to study nitrites. The results of the MIT study, released in August 1978, indicated that nitrites, by themselves, may be carcinogenic to laboratory animals. This study is presently undergoing extensive review by independent scientists. In addition, an interagency task force is reviewing the MIT study. This review should be completed by early 1980.

If the review sustains the validity of the MIT study, thus indicating that nitrites alone are carcinogenic, the current Federal Meat Inspection Act would require immediate regulatory action. Knowing that this action might be

required, USDA last summer asked the Justice Department whether a gradual phaseout of nitrite, to allow for the development of alternatives to nitrite as a botulism inhibitor, would be permitted under our current statutory provisions. The Attorney General informed USDA in March 1979 that such action would not be permissible. Thus, if nitrite is found to be carcinogenic, the current law would require immediate regulatory action.

The immediate elimination of nitrite, however, could create another serious health risk. Nitrite, when added to processed meats, poultry, and fish, inhibits the development of botulism, a rare but frequently fatal form of food poisoning. Alternatives to nitrite as a botulism inhibitor do exist--such as freezing, salt curing, or more careful handling practices--but these alternatives are not yet completely feasible on a commercial basis. Their implementation, and the development of other promising new alternatives, cannot be accomplished immediately without serious economic disruption and increased risk of botulism incidence.

Faced with these considerations, USDA and FDA have proposed legislation to Congress which provides the most reasonable and effective approach to this problem. The legislation, known as the Nitrite Moratorium and Safety Act, briefly provides that:

No action would be taken either by FDA or USDA to ban nitrite from foods in which it is used to prevent botulism until May 1, 1980. Under the legislation, USDA and FDA would be allowed to enforce existing or already proposed regulations, including those that require reductions in the amount of nitrite permitted in bacon.

Between now and May 1, 1980, USDA and FDA will collect and evaluate information about the uses and risks of nitrite and its alternatives.

At the end of the moratorium, if the studies continue to show that nitrite poses a health hazard, the agencies would propose an orderly phaseout of its use.

To effect this phaseout, the agencies would be required to assure that any alternative to nitrite would provide full protection against botulism. In considering alternatives, USDA and FDA would assess such factors as availability, practicality, its effects on energy consumption and the environment, and the cost to consumers, producers, and processors.

Both agencies would set deadlines for the reduction and elimination of nitrite in each product. There would be proposals, a comment period, and public hearings before final regulations are adopted. The intent is to move quickly but to give all interested persons a chance to express their thoughts.



Once a phaseout is begun, USDA believes it will be able to remove nitrite as a food additive by April 30, 1982. This is the target which we believe can be met. The legislation provides the agencies with the flexibility to evaluate the public health risks involved as nitrite is removed. The proposed legislation would also require the Secretary of Health, Education, and Welfare and the Secretary of Agriculture to evaluate periodically progress on the development of alternatives.

The warning signs about possible dangers from nitrites have been with us for several years. The MIT study, if confirmed, would demonstrate that nitrites themselves can cause cancer or other adverse health effects. The challenge and responsibility under the proposed legislation is for industry to work to develop alternatives to nitrites which provide equal protection against botulism. The moratorium and the subsequent phaseout periods called for by this legislation should provide stability and sufficient time for this research and development to take place.

### Net Weight Proposal

FSQS issued its proposal on net weight in response to a petition from a large number of State regulatory officials after the Supreme Court ruled that Federal net weight regulations preempted those of State and county authorities. Although the Supreme Court upheld the Federal net weight regulations, the Department determined that more definitive regulations concerning reasonable variations from net weight labeling would be in the public interest. In this connection, the Department proposed to eliminate free liquid and evaporative moisture loss in calculating the net weight of a package of meat or poultry. Unfortunately, it was accompanied by a great deal of misunderstanding and confusion.

In order to clarify the matter, the Department's Economics, Statistics, and Cooperatives Service (ESCS) was asked to carefully analyze all of the issues involved. The ESCS study should help answer questions that have been raised in reports of the Consumer Federation of America and the General Accounting Office. The ESCS report will assess the need for regulation changes, determine the effects the proposed changes would have on industry and consumers, and evaluate alternatives.

### Drug Residues in Meat and Poultry

The human health and the environmental impact of drug residues is just beginning to be understood. It presents a perplexing problem to both government and industry. Therefore, FSQS expanded its residue evaluation and detection program. Presently, the Methods Development unit of the Chemistry Division, the Pathology and Epidemiology Division, and the Residue Evaluation and Surveillance Division are the Science divisions assigned to detect and

quantify drug residues in animal tissues. The Chemistry Division has developed analytical procedures for detecting and quantifying sulfa, selenium, melengesterol acetate, and pentachlorophenol. The Pathology and Epidemiology Division is continuing the development of a serological test for infectious agents, and have refined methods which make possible the identification of penicillin and gentamicin residues in animal tissue at the parts per billion level. The Residue Evaluation and Surveillance Division monitors meat and poultry products for chemical residues; in 1978, the results of this monitoring initiated the investigation of 1,420 residue-related cases by the field inspection force. This division of the science program also collaborated with the former Extension Service and the Animal and Plant Health Inspection Service to improve methods of monitoring residue levels.

In 1978, increased emphasis was placed on sulfonamide (sulfa drugs) violations in swine and antibiotic violations in dairy cattle. Sulfa drug compounds have been used for over 20 years to control atrophic rhinitis, pneumonia, and dysentery in swine. In 1973, MPI inspectors began checking hog carcasses in slaughtering plants for sulfonamide residues. This was done as part of an expanding residue monitoring program covering various drugs, pesticides, and other potentially dangerous chemicals. Those early tests and subsequent testing confirmed that sulfa violations in swine occurred at a rate between 10 and 15 percent annually.

In the past, Government regulators tended to blame producers for violation levels, primarily alleging lack of adherence to recommended withdrawal times. But neither increased testing and public exposure to the problem nor threats of more drastic regulatory action produced lower residue violation rates. However, last spring, the Food Safety and Quality Service tried a new approach to solving the drug residue problem. With the cooperation of the agricultural community, the Department conducted on-the-farm surveys to detect the real sources of the residues. The surveys found that other routes, such as contaminated premixed feed and recycled manure, were consistent sources of high residual levels. As a result of these surveys, a system has been implemented to assist producers whose hogs are found to have violative residues. Research is continuing on how and why residues occur.

A similar approach of cooperation, assistance, and education is being used to resolve the problem of antibiotic residues in culled dairy cows.

We have high expectations that these cooperative efforts to solve the problems of sulfonamide residues in swine and antibiotic residues in cull dairy cows will be successful. These approaches may prove to be more viable solutions than previous policies, since they entail less regulation of producers, lower costs to Government, and greater protection to the consumer.



## Import Information System

The Foreign Programs Staff implemented the automated Import Information System (IIS) in October 1978. This system relies upon the technological capabilities of computers to tie together USDA's import inspection stations throughout the country in order to correlate the inspection of each lot of meat and poultry with earlier shipments from the same plant or country. Sampling plans will reflect the accumulated history from all previous imports, and inspection results may be immediately available to inspectors at all ports. This information will determine the frequency and extent of inspection for those imported products. Products from countries or plants which have a good compliance history will be sampled less frequently than those with the worst compliance history. This new IIS will permit more efficient allocation of inspection resources.

The central data system is located in Washington, D.C., and there are terminals located in the 12 major ports--Boston, New York, Philadelphia, Norfolk, Charleston, Miami, San Juan, Chicago, New Orleans, Los Angeles, San Francisco, and Seattle. Terminals are also available to the Peoria Residue Laboratory staff and to the Foreign Programs Staff. Additional terminals are planned.

## SUMMARY OF OTHER DEVELOPMENTS

### Salmonella Advisory Committee

The recommendations of the Salmonella Advisory Committee were made a part of the agenda for the USDA Food Safety and Quality Committee to determine whether action should be taken to implement such recommendations. The most urgent recommendation, a benchmark study to determine the incidence of Salmonella, is being planned by Science's Microbiology Staff.

### Codex Alimentarius Commission

FSQS was represented at the tenth session of the Codex Committee on Processed Meat and Poultry Products in Copenhagen, Denmark, November 20 to 24, 1978.

The committee agreed on a document which governs procedures to be used for meat products treated with heat prior to packaging. It will be submitted to the commission as a recommended international code of hygienic practice.

The committee also decided to recommend to the commission that a code of hygienic practice for dry and semidry sausages be elaborated. The United States was given the responsibility for developing a draft code for circulation to member countries and discussion at the next committee meeting.

### Poultry Inspection

The Federal poultry inspection law requires that USDA inspect, with few exceptions, every individual poultry carcass that is sold in the United States. The inspection methods used to carry out this effort have changed little in the past 20 years. During the same period, poultry production has changed and increased substantially. The number of inspected broilers has jumped from 1.5 billion in 1960 to 3.5 billion in 1978. The net result has been an ever-increasing Federal expenditure to provide this mandatory inspection service. Further, disease incidence in poultry has declined dramatically while inspection methods have remained basically unchanged.

Inspection of poultry by today's traditional methods involves large numbers of people and numerous time-consuming hand procedures. The performance of these procedures results in inspection inefficiencies, limits the number of birds that can be inspected, and ultimately restricts poultry production.

President Carter has set, as goals of his administration, improved regulatory procedures and reductions in both Federal expenditures and Federal employment. These goals demand that the Department find improved methods of inspection.

The Food Safety and Quality Service is exploring new ways to inspect poultry without sacrificing product safety and quality. To this end, we recently approved the first of a series of reforms to modernize poultry inspection. FSQS authorized a new, more efficient inspection method known as "modified traditional" inspection. The new method will be required for use where it would result in a realizable gain in inspection efficiency by achieving a savings in inspection manpower. In addition, it will be made available, upon request, where it can be used without loss of inspection efficiency.

This new inspection method was found to be as effective as traditional inspection in extensive field testing. The new procedure eliminates most of the time an inspector spends positioning a carcass for inspection--which can take up to 50 percent of the time under traditional methods. It also involves using mirrors to help the inspector see behind the carcass, virtually eliminating hand motions in positioning the carcass for inspection.

To assure that inspectors have sufficient time to perform the new procedures effectively, the Department has set a maximum speed of 70 birds per minute on a production line with three inspectors. The new inspection procedures will result in further efficiency for the poultry industry without creating the need for additional inspectors or sacrificing product safety.

The Department has also established uniform inspection rates for production lines utilizing traditional inspection. This was necessary because inspection rates varied throughout the United States, resulting from differing interpretations of Department guidelines by inspection officials in the field. This rate variation had concerned both the Department and the industry, and was the cause of a lawsuit in which a U.S. district court directed the Department to implement a uniform line speed policy.

Finally, it is our intention to continue to find and evaluate new methods beyond modified traditional inspection. New methods are essential if we are to further improve poultry inspection and reallocate resources to strengthen program weaknesses in areas such as the control and monitoring of chemical residues. The goal of these changes is to improve both efficiency and effectiveness of inspection.

### Additives

The Federal Meat Inspection Act and the Poultry Products Inspection Act permit the use of only those food additives which have been evaluated and approved as safe by the Food and Drug Administration (FDA). Following FDA

approval, the Department determines whether or not an additive would otherwise adulterate meat or poultry. Under the Federal Meat Inspection Act and the Poultry Products Inspection Act, the Department has the authority to prohibit a food additive in meat or poultry even though FDA has determined that it would be safe in food.

USDA does not provide permanent approval for any additive. USDA and the FDA continually review approved chemicals to determine if approvals should be modified or withdrawn.

#### Mechanically Processed (Species) Product

In 1976, the Department of Agriculture (USDA) proposed to allow production of meat mechanically removed from bones as "mechanically deboned meat," and its use in processed products, such as luncheon meat, with no labeling requirement to identify it other than the species, such as "beef," or "pork." Several consumer groups then sued the USDA in district court. The court said that USDA had not shown the product to be safe and had not required accurate labeling. As a result, the product was taken off the market in September 1976.

Subsequently, USDA convened a panel of scientists to review the product. They found it to be safe when used in limited quantities. However, among other things, the panel found that the product contains a greater amount of calcium than ordinary meat because some finely ground, dust-like bone escapes through the sieves used in production.

In October 1977, the Department issued a proposed regulation based on the panel's findings which required labels to state that a processed product contained "tissue from ground bone." Over 4,500 comments were received. Many vigorously opposed allowing the product to be sold at all, and a large number of people objected to use of the name "tissue from ground bone."

In June 1978, the Department issued final regulations which approved use of the product and required it to be labeled "Mechanically Processed (Species) Product," for example, "Mechanically Processed Beef Product." The label must also contain the additional qualifying phrase, "Contains up to \_\_\_\_\_% Powdered Bone." This label accurately informs the public about the characteristics of the product, as was called for in the comments received on the proposed rule.

#### Mechanically Deboned Poultry

A health and safety evaluation similar to the one conducted for mechanically processed red meat products is being completed for mechanically deboned poultry. The evaluation is being conducted with the advice and review of the members of the panel convened to evaluate mechanically processed meat products.



In addition, in the near future, USDA will be publishing a request for information to determine whether similar labeling should be required for mechanically processed poultry products. FSQS will ask for comments from the public, industry, Congress, and other interested parties on this issue so that a fully informed decision can be made as to whether any labeling change for poultry products is necessary.

### Labeling

In 1978, USDA, in conjunction with the Food and Drug Administration and the Federal Trade Commission, sponsored a series of public hearings to determine what changes should be made in current labeling policies. A great number of consumers expressed their views at these hearings. In addition, the agencies have amassed a considerable amount of data from many public and private sources through letters and other means. They are presently analyzing this information in order to develop a comprehensive food labeling policy which will be most useful to consumers. They are interested in making changes that will provide consumers with information they need in a manner they can understand.







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